

ABSTRACT

A radiation polarizer, controller, and a method of radiation polarization and beam control, are disclosed. The radiation polarizer includes a substrate, at least one anti-reflection coating layer communicatively coupled to the substrate, at least two nanostructures communicatively coupled to the at least one anti-reflection coating layer, and at least two groove layers, wherein each one of the at least two groove layers is interstitial to a respective one of the at least two nanostructures. The method may include the steps of communicatively coupling at least one anti-reflection coating layer to a substrate, communicatively coupling at least two nanostructures to at least one of the at least one anti-reflection coating layer, providing interstitially to a respective one of the at least two nanostructures at least two groove layers, coupling the at least two groove layers and the at least two nanostructures to provide a pass wavelength in the range of about 250 nm to less than about a microwave wavelength, and allowing for examining of radiation having a wavelength in a range of about 250 nm to less than about a microwave wavelength, and having an electric field orthogonal to the at least two groove layers, by allowing for a passing of the radiation through said coupling of the at least two groove layers and the at least two nanostructures.